SEQUENCE LISTING

SEQ ID NO: 1
MVLLYSQASWDKRSKADALVLPFWMKNSKAQEAAVVDEDYKLVYQNALSNFSGKKG
ETAFLFGNDHTKEQKIVLLGLGKSEEVSGTTVLEAYAQATTVLRKAKCKTVNILLPTISQ
LRFSVEEFLTNLAAGVLSLNYNYPTYHKVDTSLPFLEKVTVMGIVSKVGDKIFRKEESLF
EGVYLTRDLVNTNADEVTPEKLAAVAKDLAGEFASLDVKILDRKAILKEKMGLLAAVA
KGAAVEPRFIVLDYQGKPKSKDRTVLIGKGVTFDSGGLDLKPGKAMITMKEDMAGAAT
VLGIFSALASLELPINVTGIIPATENAIGSAAYKMGDVYVGMTGLSVEIGSTDAEGRLILA
DAISYALKYCNPTRIIDFATLTGAMVVSLGESVAGFFANNDVLARDLAEASSETGEALW
RMPLVEKYDQALHSDIADMKNIGSNRAGSITAALFLQRFLEDNPVAWAHLDIAGTAYHE
KEELPYPKYATGFGVRCLIHYMEKFLSK

SEQ ID NO: 2
MTASGGAGGLGSTQTVDVARAQAAAATQDAQEVIGSQEASEASMLKGCEDLINPAAAT
RIKKKGEKFESLEARRKPTADKAEKKSESTEEKGDTPLEDRFTEDLSEVSGEDFRGLKNS
FDDDSSPDEILDALTSKFSDPTIKDLALDYLIQTAPSDGKLKSTLIQAKHQLMSQNPQAIV
GGRNVLLASETEASRANTSPSSLRSLYEQVTSSPSNCANLHQMLASYLPSEKTAVMEFLV
NGMVADLKSEGPSIPPAKLQVYMTELSNLQALHSVNSFFDRNIGNLENSLKHEGHAPIPS
LTTGNLTKTFLQLVEDKFPSSSKAQKALNELVGPDTGPQTEVLNLFFRALNGCSPRIFSGA
EKKQQLASVITNTLDAINADNEDYPKPGDFPRSSFSSTPPHAPVPQSEIPTSPTSTQPPSP

SEQ ID NO: 3
MCIKRKKTWIAFLAVVCSFCLTGCLKEGGDSNSEKFIVGTNATYPPFEFVDKRGEVVGFD
IDLAREISNKLGKTLDVREFSFDALILNLKQHRIDAVITGMSITPSRLKEILMIPYYGEEIKH
LVLVFKGENKHPLPLTQYRSVAVQTGTYQEAYLQSLSEVHIRSFDSTLEVLMEVMHGKS
PVAVLEPSIAQVVLKDFPALSTATIDLPEDQWVLGYGIGVASDRPALALKIEAAVQEIRKE
GVLAELEQKWGLNN

SEQ ID NO: 4
MSEKRKSNKIIGIDLGTTNSCVSVMEGGQPKVIASSEGTRTTPSIVAFKGGETLVGIPAKR
QAVTNPEKTLASTKRFIGRKFSEVESEIKTVPYKVAPNSKGDAVFDVEQKLYTPEEIGAQI
LMKMMKETAEAYLGETVTEAVITVPAYFNDSQRASTKDAGRIAGLDVKRIIPEPTAAALA
YGIDKEGDKKIAVFDLGGGTFDISILEIGDGVFEVLSTNGDTHLGGDDFDGVIINWMLDEF
KKQEGIDLSKDNMALQRLKDAAEKAKIELSGVSSTEINQPFITIDANGPKHLALTLTRAQF
EHLASSLIERTKQPCAQALKDAKLSASDIDDVLLVGGMSRMPAVQAVVKEIFGKEPNKG
VNPDEVVAIGAAIQGGVLGGEVKDVLLLDVIPLSLGIETLGGVMTPLVERNTTIPTKKQI
FSTAADNQPAVTIVVLQGERPMAKDNKEIGRFDLTDIPPAPRGHPQIEVTFDIDANGILHV
SAKDAASGREQKIRIEASSGLKEDEIQQMIRDAELHKEEDKQRKEASDVKNEADGMIFRA
EKAVKDYHDKIPAELVKEIEEHIEKVRQAIKEDASTTAIKAASDELSTHMQKIGEAMQAQ
SASAAASSAANAQGGPNINSEDLKKHSFSTRPPAGGSASSTDNIEDADVEIVDKPE

SEQ ID NO: 5
MHDALQSILAIQELDIKMIRLMRVKKEHQNELAKIQALKTDIRRKVEEKEQEMEKLKDQI
KGGEKRIQEISDQINKLENQQAAVKKMDEFNALTQEMTAANKERRTLEHQLSDLMDKQ
AGSEDLLISLKESLSSTENSSSAIEEEIRENIRKINEEGRSLLSQRTQLKETTDPELFSIYERL
LNNKKDRVVVPIENRVCSGCHIALTPQHENLVRKQDHLVFCEHCSRILYWQELQSPSAE
GATTKRRRRRTAV

SEQ ID NO: 6

1

MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEFEKMKNQFSNSMG
KMEEELSSIYSKLQDDDYMEGLSETAAAELRKKFEDLSAEYNTAQGQYYQILNQSNLKR
MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTDAVIKVLDDSFQNN

SEQ ID NO: 7
MTTESLETLVEQLSGLTVLELSQLKKLLEEKWDVTAAAPVVAVAGAAAAGDAPASAEP
TEFAVILEDVPSDKKIGVLKVVREVTGLALKEAKEMTEGLPKTVKEKTSKSDAEDTVKK
LQEAGAKAVAKGL

SEQ ID NO: 8
MKKTALLAALCSVVSLSSCCRIVDCCFEDPCAPIQCSPCESKKKDVDGGCNSCNGYVPA
CKPCGGDTHQDAKHGPQARGIPVDGKCRQ

SEQ ID NO: 9
MPKIDTCDSCVSNTELLAIRTRVTQSYNEAQTILSSIPDGIFLLSESGEILICNPQARAILGIP
EDIQLVTRMFHDFFPDTFFGFSVQEALEKEVPPKTIRLTLSQELSQKEVEVFVRKNISHDFL
FLLIRDRSDYRQLEQAIEKYRSISELGKIAATLAHEIRNPLTSISGFATLLKEELSSERHQRM
LNVIIEGTRSLNSLVSSMLEYTKIQPLNLRSIDLQDFFSSLIPELSLTFPSCTFRRTILSPIQRSI
DPDRLRCVIWNLVKNAVEASDEEIFLELHEKGFSVINTGTLPPNIQEKLFIPFFTTKPQGNG
LGLAEAHKIMRLHGGDLVVSTQDNRTTFTILWTPA

SEQ ID NO: 10
MKVILRALCLFLVLPCGCYARVPSFEPFRGAIAPNRYTPKHSPELYFEMGDKYFQAKKFK
QALLCFGMITHHFPEHALHPKAQFLVGLCYLEMGHPDLADKALTQYQELADTEYSEQLF
AIKYSIAQSFANGKRKNIVPLEGFPKLLKADTDALRIFEEIVTASSDADLKASALYAKGAL
LFDRKEYSEAIKTLKKVSLQFPSHSLSPESFTLIAKIHCLQALQEPYNEQYLQDARMNAAA
LRKQHPNHPSNTEVENYIHHMCEAYASCLYSTGRFYEKKRKASSAKIYYSIALENFPDTS
YVAKCNKRLERLSKQMS

SEQ ID NO: 11
MFDVVISDIEAREILDSRGYPTLCVKVITNTGTFGEACVPSGASTGIKEALELRDKDPKRY
QGKGVLQAISNVEKVLMPALQGFSVFDQITADAIMIDADGTPNKEKLGANAILGVSLAL
AKAAANTLQRPLYRYLGGSFSHVLPCPMMNLINGGMHATNGLQFQEFMIRPISAPSLTE
AVRMGAEVFNALKKILQNRQLATGVGDEGGFAPNLASNAEALDLLLTAIETAGFTPRED
ISLALDCAASSFYNTQDKTYDGKSYADQVGILAELCEHYPIDSIEDGLAEEDFEGWKLLS
ETLGDRVQLVGDDLFVTNSALIAEGIAQGLANAVLIKPNQIGTLTETAEAIRLATIQGYAT
ILSHRSGETEDTTIADLAVAFNTGQIKTGSLSRSERIAKYNRLMAIEEEMGPEALFQDSNPF
SKA

SEQ ID NO: 12
MMKRLLCVLLSTSVFSSPMLGYSASKKDSKADICLAVSSGDQEVSQEDLLKEVSRGFSR
VAAKATPGVVYIENFPKTGNQAIASPGNKRGFQENPFDYFNDEFFNRFFGLPSHREQQRP
QQRDAVRGTGFIVSEDGYVVTNHHVVEDAGKIHVTLHDGQKYTAKIVGLDPKTDLAVI
KIQAEKLPFLTFGNSDQLQIGDWAIAIGNPFGLQATVTVGVISAKGRNQLHIVDFEDFIQT
DAAINPGNSGGPLLNINGQVIGVNTAIVSGSGGYIGIGFAIPSLMAKRVIDQLISDGQVTRG
FLGVTLQPIDSELATCYKLEKVYGALVTDVVKGSPAEKAGLRQEDVIVAYNGKEVESLS
ALRNAISLMMPGTRVVLKIVREGKTIEIPVTVTQIPTEDGVSALQKMGVRVQNITPEICKK
LGLAADTRGILVVAVEAGSPAASAGVAPGQLILAVNRQRVASVEELNQVLKNSKGENVL
LMVSQGDVVRFIVLKSDE

SEQ ID NO: 13

MKKINKIVLAVGGTGGHIIPALAARETFIHEDIEVLLLGKGLAHFLGDDSEVAYCDIPSGS
PFSLRVNRMFSGAKQLYKGYVAALQKIRDFTPDLAIGFGSYHSLPAMLASIRSRIPLFLHE
QNIVPGKVNKLFSRFAKGVGMSFAAAGEHFHCRAEEVFLPIRKLSEQIVFPGASPVICVV
GGSQGAKILNDVVPKALARIRESYSNLYVHHIVGPKGDLQAVSQVYQDAGINHTVTAFD
HNMLGVLQASDLVISRSGATMLNELLWVQVPAILIPYPGAYGHQEVNAKFFTHTVGGGT
MILQKYLTEESLSKQVLLALDPATSENRRKAMLSAQQKKSFKSLYQFICESL

SEQ ID NO: 14
MGNSGFYLYNTQNCVFADNIKVGQMTEPLKDQQIILGTTSTPVAAKMTASDGISLTVSN
NPSTNASITIGLDAEKAYQLILEKLGDQILGGIADTIVDSTVQDILDKITTDPSLGLLKAFN
NFPITNKIQCNGLFTPRNIETLLGGTEIGKFTVTPKSSGSMFLVSADIIASRMEGGVVLALV
REGDSKPYAISYGYSSGVPNLCSLRTRIINTGLTPTTYSLRVGGLESGVVWVNALSNGNDI
LGITNTSNVSFLEVIPQTNA

SEQ ID NO: 15 (pmpA)(CT412)
MNRVIEIHAHYDQRQLSQSPNTNFLVHHPYLTLIPKFLLGALIVYAPYSFAEMELAISGHK
QGKDRDTFTMISSCPEGTNYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH
FKHININGFGAGVFSESSIEFTDLRKLVAFGSESTGGIFTAKEDISFKNNHHIAFRNNITKGN
GGVIQLQGDMKGSVSFVDQRGAIIFTNNQAVTSSSMKHSGRGGAISGDFAGSRILFLNNQ
QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF
SQNHANKKGGAIYAQYVNLEQNQDTIRFEKNTAKEGGGAITSSQCSITAHNTIIFSDNAA
GDLGGGAILLEGKKPSLTLIAHSGNIAFSGNTMLHITKKASLDRHNSILIKEAPYKIQLAA
NKNHSIHFFDPVMALSASSSPIQINAPEYETPFFSPKGMIVFSGANLLDDAREDVANRTSIF
NQPVHLYNGTLSIENGAHLIVQSFKQTGGRISLSPGSSLALYTMNSFFHGNISSKEPLEING
LSFGVDISPSNLQAEIRAGNAPLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI
SKFTTDSLVTNKQSGFQGAWHFSWQPNTINNTKQKILRASWLPTGEYVLESNRVGRAVP
NSLWSTFLLLQTASHNLGDHLCNNRSLIPTSYFGVLIGGTGAEMSTHSSEEESFISRLGAT
GTSIIRLTPSLTLSGGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL
DHNAMVRICSKKDHTYGKWDTFGMRGTLGASYTFLEYDQTMRVFSFANIEATNILQRA
FTETGYNPRSFSKTKLLNIAIPIGIGYEFCLGNSSFALLGKGSIGYSRDIKRENPSTLAHLAM
NDFAWTTNGCSVPTSAHTLANQLILRYKACSLYITAYTINREGKNLSNSLSCGGYVGF

SEQ ID NO: 16 (pmpB)(CT413)
MKWLSATAVFAAVLPSVSGFCFPEPKELNFSRVGTSSSTTFTETVGEAGAEYIVSGNASF
TKFTNIPTTDTTTPTNSNSSSSNGETASVSEDSDSTTTTPDPKGGGAFYNAHSGVLSFMTR
SGTEGSLTLSEIKITGEGGAIFSQGELLFTDLTGLTIQNNLSQLSGGAIFGESTISLSGITKAT
FSSNSAEVPAPVKKPTEPKAQTASETSGSSSSSGNDSVSSPSSSRAEPAAANLQSHFICATA
TPAAQTDTETSTPSHKPGSGGAIYAKGDLTIADSQEVLFSINKATKDGGAIFAEKDVSFEN
ITSLKVQTNGAEEKGGAIYAKGDLSIQSSKQSLFNSNYSKQGGGALYVEGDINFQDLEEIR
IKYNKAGTFETKKITLPKAQASAGNADAWASSSPQSGSGATTVSNSGDSSSGSDSDTSET
VPATAKGGGLYTDKNLSITNITGIIEIANNKATDVGGGAYVKGTLTCENSHRLQFLKNSS
DKQGGGIYGEDNITLSNLTGKTLFQENTAKEEGGGLFIKGTDKALTMTGLDSFCLINNTS
EKHGGGAFVTKEISQTYTSDVETIPGITPVHGETVITGNKSTGGNGGGVCTKRLALSNLQ
SISISGNSAAENGGGAHTCPDSFPTADTAEQPAAASAATSTPESAPVVSTALSTPSSSTVSS
LTLLAASSQASPATSNKETQDPNADTDLLIDYVVDTTISKNTAKKGGGIYAKKAKMSRID
QLNISENSATEIGGGICCKESLELDALVSLSVTENLVGKEGGGLHAKTVNISNLKSGFSFS
NNKANSSSTGVATTASAPAAAAASLQAAAAAVPSSPATPTYSGVVGGAIYGEKVTFSQC
SGTCQFSGNQAIDNNPSQSSLNVQGGAIYAKTSLSIGSSDAGTSYIFSGNSVSTGKSQTTG
QIAGGAIYSPTVTLNCPATFSNNTASMATPKTSSEDGSSGNSIKDTIGGAIAGTAITLSGVS
RFSGNTADLGAAIGTLANANTPSATSGSQNSITEKITLENGSFIFERNQANKRGAIYSPSVS
IKGNNITFNQNTSTHDGSAIYFTKDATIESLGSVLFTGNNVTATQASSATSGQNTNTANY

GAAIFGDPGTTQSSQTDAILTLLASSGNITFSNNSLQNNQGDTPASKFCSIAGYVKLSLQA
AKGKTISFFDCVHTSTKKIGSTQNVYETLDINKEENSNPYTGTIVFSSELHENKSYIPQNAI
LHNGTLVLKEKTELHVVSFEQKEGSKLIMKPGAVLSNQNIANGALVINGLTIDLSSMGTP
QAGEIFSPPELRIVATTSSASGGSGVSSSIPTNPKRISAAAPSGSAATTPTMSENKVFLTGDL
TLIDPNGNFYQNPMLGSDLDVPLIKLPTNTSDVQVYDLTLSGDLFPQKGYMGTWTLDSN
PQTGKLQARWTFDTYRRWVYIPRDNHFYANSILGSQNSMIVVKQGLINNMLNNARFDDI
AYNNFWVSGVGTFLAQQGTPLSEEFSYYSRGTSVAIDAKPRQDFILGAAFSKMVGKTKA
IKKMHNYFHKGSEYSYQASVYGGKFLYFLLNKQHGWALPFLIQGVVSYGHIKHDTTTLY
PSIHERNKGDWEDLGWLADLRISMDLKEPSKDSSKRITVYGELEYSSIRQKQFTEIDYDPR
HFDDCAYRNLSLPVGCAVEGAIMNCNILMYNKLALAYMPSIYRNNPVCKYRVLSSNEA
GQVICGVPTRTSARAEYSTQLYLGPFWTLYGNYTIDVGMYTLSQMTSCGARMIF

SEQ ID NO: 17 (pmpC)(CT414)
MKFMSATAVFAAALSSVTEASSIQDQIKNTDCNVSKLGYSTSQAFTDMMLADNTEYRA
ADSVSFYDFSTSSRLPRKHLSSSSEASPTTEGVSSSSSGETDEKTEEELDNGGIIYAREKLTI
SESQDSLSNQSIELHDNSIFFGEGEVIFDHRVALKNGGAIYGEKEVVFENIKSLLVEVNIAV
EKGGSVYAKERVSLENVTEATFSSNGGEQGGGGIYSEQDMLISDCNNVHFQGNAAGAT
AVKQCLDEEMIVLLAECVDSLSEDTLDSTPETEQTESNGNQDGSSETEDTQVSESPESTPS
PDDVLGKGGGIYTEKSLTITGITGTIDFVSNIATDSGAGVFTKENLSCTNTNSLQFLKNSA
GQHGGGAYVTQTMSVTNTTSESITTPPLIGEVIFSENTAKGHGGGICTNKLSLSNLKTVTL
TKNSAKESGGAIFTDLASIPITDTPESSTPSSSSPASTPEVVASAKINRFFASTAKPAAPSLTE
AESDQTDQTETSDTNSDIDVSIENILNVAINQNTSAKKGGAIYGKKAKLSRINNLELSGNS
SQDVGGGLCLTESVEFDAIGSLLSHYNSAAKEGGAIHSKTVTLSNLKSTFTFADNTVKAI
VESTPEAPEEIPPVEGEESTATEDPNSNTEGSSANTNLEGSQGDTADTGTGDVNNESQDTS
DTGNAESEEQLQDSTQSNEENTLPNSNIDQSNENTDESSDSHTEEITDESVSSSSESGSSTP
QDGGAASSGAPSGDQSISANACLAKSYAASTDSSPVSNSSGSEEPVTSSSDSDVTASSDNP
DSSSSGDSAGDSEEPTEPEAGSTTETLTLIGGGAIYGETVKIENFSGQGIFSGNKAIDNTTE
GSSSKSDVLGGAVYAKTLFNLDSGSSRRTVTFSGNTVSSQSTTGQVAGGAIYSPTVTIATP
VVFSKNSATNNANNTTDTQRKDTFGGAIGATSAVSLSGGAHFLENVADLGSAIGLVPGT
QNTETVKLESGSYYFEKNKALKRATIYAPVVSIKAYTATFNQNRSLEEGSAIYFTKEASIE
SLGSVLFTGNLVTLTLSTTTEGTPATTSGDVTKYGAAIFGQIASSNGSQTDNLPLKLIASG
GNICFRNNEYRPTSSDTGTSTFCSIAGDVKLTMQAAKGKTISFFDAIRTSTKKTGTQATAY
DTLDINKSEDSETVNSAFTGTILFSSELHENKSYIPQNVVLHSGSLVLKPNTELHVISFEQK
EGSSLVMTPGSVLSNQTVADGALVINNMTIDLSSVEKNGIAEGNIFTPPELRIIDTTTGGSG
GTPSTDSESNQNSDDTEEQNNNDASNQGESANGSSSPAVAAAHTSRTRNFAAAATATPT
TTPTATTTTSNQVILGGEIKLIDPNGTFFQNPALRSDQQISLLVLPTDSSKMQAQKIVLTGD
IAPQKGYTGTLTLDPDQLQNGTISVLWKFDSYRQWAYVPRDNHFYANSILGSQMLMVT
VKQGLLNDKMNLARFEEVSYNNLWISGLGTMLSQVGTPTSEEFTYYSRGASVALDAKP
AHDVIVGAAFSKMIGKTKSLKRENNYTHKGSEYSYQASVYGGKPFHFVINKKTEKSLPL
LLQGVISYGYIKHDTVTHYPTIRERNKGEWEDLGWLTALRVSSVLRTPAQGDTKRITVY
GELEYSSIRQKQFTETEYDPRYFDNCTYRNLAIPMGLAFEGELSGNDILMYNRFSVAYML
SIYRNSPTCKYQVLSSGEGGEIICGVPTRNSARGEYSTQLYLGPLWTLYGSYTIEADAHTL
AHMMNCGARMTF

SEQ ID NO: 18 (pmpD)(CT812)
MSSEKDIKSTCSKFSLSVVAAILASVSGLASCVDLHAGGQSVNELVYVGPQAVLLLDQIR
DLFVGSKDSQAEGQYRLIVGDPSSFQEKDADTLPGKVEQSTLFSVTNPVVFQGVDQQDQ
VSSQGLICSFTSSNLDSPRDGESFLGIAFVGDSSKAGITLTDVKASLSGAALYSTEDLIFEKI
KGGLEFASCSSLEQGGACAAQSILIHDCQGLQVKHCTTAVNAEGSSANDHLGFGGGAFF
VTGSLSGEKSLYMPAGDMVVANCDGAISFEGNSANFANGGAIAASGKVLFVANDKKTS
FIENRALSGGAIAASSDIAFQNCAELVFKGNCAIGTEDKGSLGGGAISSLGTVLLQGNHGI

TCDKNESASQGGAIFGKNCQISDNEGPVVFRDSTACLGGGAIAAQEIVSIQNNQAGISFEG
GKASFGGGIACGSFSSAGGASVLGTIDISKNLGAISFSRTLCTTSDLGQMEYQGGGALFGE
NISLSENAGVLTFKDNIVKTFASNGKILGGGAILATGKVEITNNSEGISFTGNARAPQALPT
QEEFPLFSKKEGRPLSSGYSGGGAILGREVAILHNAAVVFEQNRLQCSEEEATLLGCCGG
GAVHGMDSTSIVGNSSVRFGNNYAMGQGVSGGALLSKTVQLAGNGSVDFSRNIASLGG
GALQASEGNCELVDNGYVLFRDNRGRVYGGAISCLRGDVVISGNKGRVEFKDNIATRLY
VEETVEKVEEVEPAPEQKDNNELSFLGRAEQSFITAANQALFASEDGDLSPESSISSEELA
KRRECAGGAIFAKRVRIVDNQEAVVFSNNFSDIYGGAIFTGSLREEDKLDGQIPEVLISGN
AGDVVFSGNSSKRDEHLPHTGGGAICTQNLTISQNTGNVLFYNNVACSGGAVRIEDHGN
VLLEAFGGDIVFKGNSSFRAQGSDAIYFAGKESHITALNATEGHAIVFHDALVFENLEER
KSAEVLLINSRENPGYTGSIRFLEAESKVPQCIHVQQGSLELLNGATLCSYGFKQDAGAK
LVLAAGAKLKILDSGTPVQQGHAISKPEAEIESSSEPEGAHSLWIAKNAQTTVPMVDIHTI
SVDLASFSSSQQEGTVEAPQVIVPGGSYVRSGELNLELVNTTGTYENHALLKNEAKVPL
MSFVASGDEASAEISNLSVSDLQIHVVTPEIEEDTYGHMGDWSEAKIQDGTLVISWNPTG
YRLDPQKAGALVFNALWEEGAVLSALKNARFAHNLTAQRMEFDYSTNVWGFAFGGFR
TLSAENLVAIDGYKGAYGGASAGVDIQLMEDFVLGVSGAAFLGKMDSQKFDAEVSRKG
VVGSVYTGFLAGSWFFKGQYSLGETQNDMKTRYGVLGESSASWTSRGVLADALVEYRS
LVGPVRPTFYALHFNPYVEVSYASMKFPGETEQGREARSFEDASLTNITIPLGMKFELAFI
KGQFSEVNSLGISYAWEAYRKVEGGAVQLLEAGFDWEGAPMDLPRQELRVALENNTE
WSSYFSTVLGLTAFCGGFTSTDSKLGYEANTGLRLIF

SEQ ID NO: 19 (pmpE)(CT869)

MKKAFFFFLIGNSLSGLAREVPSRIFLMPNSVPDPTKESLSNKISLTGDTHNLTNCYLDNL
RYILAILQKTPNEGAAVTITDYLSFFDTQKEGIYFAKNLTPESGGAIGYASPNSPTVEIRDTI
GPVIFENNTCCRLFTWRNPYAADKIREGGAIHAQNLYINHNHDVVGFMKNFSYVQGGAI
STANTFVVSENQSCFLFMDNICIQTNTAGKGGAIYAGTSNSFESNNCDLFFINNACCAGG
AIFSPICSLTGNRGNIVFYNNRCFKNVETASSEASDGGAIKVTTRLDVTGNRGRIFFSDNIT
KNYGGAIYAPVVTLVDNGPTYFINNIANNKGGAIYIDGTSNSKISADRHAIIFNENIVTNV
TNANGTSTSANPPRRNAITVASSSGEILLGAGSSQNLIFYDPIEVSNAGVSVSFNKEADQT
GSVVFSGATVNSADFHQRNLQTKTPAPLTLSNGFLCIEDHAQLTVNRFTQTGGVVSLGN
GAVLSCYKNGTGDSASNASITLKHIGLNLSSILKSGAEIPLLWVEPTNNSNNYTADTAATF
SLSDVKLSLIDDYGNSPYESTDLTHALSSQPMLSISEASDNQLQSENIDFSGLNVPHYGWQ
GLWTWGWAKTQDPEPASSATITDPQKANRFHRTLLLTWLPAGYVPSPKHRSPLIANTLW
GNMLLATESLKNSAELTPSGHPFWGITGGGLGMMVYQDPRENHPGFHMRSSGYSAGMI
AGQTHTFSLKFSQTYTKLNERYAKNNVSSKNYSCQGEMLFSLQEGFLLTKLVGLYSYGD
HNCHHFYTQGENLTSQGTFRSQTMGGAVFFDLPMKPFGSTHILTAPFLGALGIYSSLSHF
TEVGAYPRSFSTKTPLINVLVPIGVKGSFMNATHRPQAWTVELAYQPVLYRQEPGIAAQL
LASKGIWFGSGSPSSRHAMSYKISQQTQPLSWLTLHFQYHGFYSSSTFCNYLNGEIALRF

SEQ ID NO: 20 (pmpF)(CT870)

MIKRTSLSFACLSFFYLSTISILQANETDTLQFRRFTFSDREIQFVLDPASLITAQNIVLSNLQ
SNGTGACTISGNTQTQIFSNSVNTTADSGGAFDMVTTSFTASDNANLLFCNNYCTHNKG
GGAIRSGGPIRFLNNQDVLFYNNISAGAKYVGTGDHNEKNRGGALYATTITLTGNRTLAF
INNMSGDCGGAISADTQISITDTVKGILFENNHTLNHIPYTQAENMARGGAICSRRDLCSIS
NNSGPIVFNYNQGGKGGAISATRCVIDNNKERIIFSNNSSLGWSQSSSASNGGAIQTTQGF
TLRNNKGSIYFDSNTATHAGGAINCGYIDIRDNGPVYFLNNSAAWGAAFNLSKPRSATN
YIHTGTGDIVFNNNVVFTLDGNLLGKRKLFHINNNEITPYTLSLGAKKDTRIYFYDLFQW
ERVKENTSNNPPSPTSRNTITVNPETEFSGAVVFSYNQMSSDIRTLMGKEHNYIKEAPTTL
KFGTLAIEDDAELEIFNIPFTQNPTSLLALGSGATLTVGKHGKLNITNLGVILPIILKEGKSP
PCIRVNPQDMTQNTGTGQTPSSTSSISTPMIIFNGRLSIVDENYESVYDSMDLSRGKAEQLI
LSIETTNDGQLDSNWQSSLNTSLLSPPHYGYQGLWTPNWITTTYTITLNNNSSAPTSATSI

AEQKKTSETFTPSNTTTASIPNIKASAGSGSGSASNSGEVTITKHTLVVNWAPVGYIVDPIR
RGDLIANSLVHSGRNMTMGLRSLLPDNSWFALQGAATTLFTKQQKRLSYHGYSSASKG
YTVSSQASGAHGHKFLLSFSQSSDKMKEKETNNRLSSRYYLSALCFEHPMFDRIALIGAA
ACNYGTHNMRSFYGTKKSSKGKFHSTTLGASLRCELRDSMPLRSIMLTPFAQALFSRTEP
ASIRESGDLARLFTLEQAHTAVVSPIGIKGAYSSDTWPTLSWEMELAYQPTLYWKRPLLN
TLLIQNNGSWVTTNTPLAKHSFYGRGSHSLKFSHLKLFANYQAEVATSTVSHYINAGGA
LVF

SEQ ID NO: 21 (pmpG)(CT871)
MQTSFHKFFLSMILAYSCCSLSGGGYAAEIMIPQGIYDGETLTVSFPYTVIGDPSGTTVFSA
GELTLKNLDNSIAALPLSCFGNLLGSFTVLGRGHSLTFENIRTSTNGAALSDSANSGLFTIE
GFKELSFSNCNSLLAVLPAATTNNGSQTPTTTSTPSNGTIYSKTDLLLLNNEKFSFYSNLV
SGDGGAIDAKSLTVQGISKLCVFQENTAQADGGACQVVTSFSAMANEAPIAFIANVAGV
RGGGIAAVQDGQQGVSSSTSTEDPVVSFSRNTAVEFDGNVARVGGGIYSYGNVAFLNNG
KTLFLNNVASPVYIAAEQPTNGQASNTSDNYGDGGAIFCKNGAQAAGSNNSGSVSFDGE
GVVFFSSNVAAGKGGAIYAKKLSVANCGPVQFLGNIANDGGAIYLGESGELSLSADYGD
IIFDGNLKRTAKENAADVNGVTVSSQAISMGSGGKITTLRAKAGHQILFNDPIEMANGNN
QPAQSSEPLKINDGEGYTGDIVFANGNSTLYQNVTIEQGRIVLREKAKLSVNSLSQTGGSL
YMEAGSTLDFVTPQPPQQPPAANQLITLSNLHLSLSSLLANNAVTNPPTNPPAQDSHPAII
GSTTAGSVTISGPIFFEDLDDTAYDRYDWLGSNQKIDVLKLQLGTQPSANAPSDLTLGNE
MPKYGYQGSWKLAWDPNTANNGPYTLKATWTKTGYNPGPERVASLVPNSLWGSILDIR
SAHSAIQASVDGRSYCRGLWVSGVSNFFYHDRDALGQGYRYISGGYSLGANSYFGSSMF
GLAFTEVFGRSKDYVVCRSNHHACIGSVYLSTKQALCGSYLFGDAFIRASYGFGNQHMK
TSYTFAEESDVRWDNNCLVGEIGVGLPIVITPSKLYLNELRPFVQAEFSYADHESFTEEGD
QARAFRSGHLMNLSVPVGVKFDRCSSTHPNKYSFMGAYICDAYRTISGTQTTLLSHQET
WTTDAFHLARHGVIVRGSMYASLTSNIEVYGHGRYEYRDTSRGYGLSAGSKVRF

SEQ ID NO: 22 (pmpH)(CT872)
MPFSLRSTSFCFLACLCSYSYGFASSPQVLTPNVTTPFKGDDVYLNGDCAFVNVYAGAE
NGSIISANGDNLTITGQNHTLSFTDSQGPVLQNYAFISAGETLTLKDFSSLMFSKNVSCGE
KGMISGKTVSISGAGEVIFWDNSVGYSPLSIVPASTPTPPAPAPAPAASSSLSPTVSDARKG
SIFSVETSLEISGVKKGVMFDNNAGNFGTVFRGNSNNNAGSGGSGSATTPSFTVKNCKGK
VSFTDNVASCGGGVVYKGTVLFKDNEGGIFFRGNTAYDDLGILAATSRDQNTETGGGG
GVICSPDDSVKFEGNKGSIVFDYNFAKGRGGSILTKEFSLVADDSVVFSNNTAEKGGGAI
YAPTIDISTNGGSILFERNRAAEGGAICVSEASSGSTGNLTLSASDGDIVFSGNMTSDRPGE
RSAARILSDGTTVSLNASGLSKLIFYDPVVQNNSAAGASTPSPSSSSMPGAVTINQSGNGS
VIFTAESLTPSEKLQVLNSTSNFPGALTVSGGELVVTEGATLTTGTITATSGRVTLGSGAS
LSAVAGAANNNYTCTVSKLGIDLESFLTPNYKTAILGADGTVTVNSGSTLDLVMESEAE
VYDNPLFVGSLTIPFVTLSSSSASNGVTKNSVTINDADAAHYGYQGSWSADWTKPPLAP
DAKGMVPPNTNNTLYLTWRPASNYGEYRLDPQRKGELVPNSLWVAGSALRTFTNGLKE
HYVSRDVGFVASLHALGDYILNYTQDDRDGFLARYGGFQATAASHYENGSIFGVAFGQ
LYGQTKSRMYYSKDAGNMTMLSCFGRSYVDIKGTETVMYWETAYGYSVHRMHTQYF
NDKTQKFDHSKCHWHNNNYYAFVGAEHNFLEYCIPTRQFARDYELTGFMRFEMAGGW
SSSTRETGSLTRYFARGSGHNMSLPIGIVAHAVSHVRRSPPSKLTLNMGYRPDIWRVTPH
CNMEIIANGVKTPIQGSPLARHAFFLEVHDTLYIHHFGRAYMNYSLDARRRQTAHFVSM
GLNRIF

SEQ ID NO: 23 (pmpI)
MRPDHMNFCCLCAAILSSTAVLFGQDPLGETALLTKNPNHVVCTFFEDCTMESLFPALC
AHASQDDPLYVLGNSYCWFVSKLHITDPKEALFKEKGDLSIQNFRFLSFTDCSSKESSPSII
HQKNGQLSLRNNGSMSFCRNHAEGSGGAISADAFSLQHNYLFTAFEENSSKGNGGAIQA

6

QTFSLSRNVSPISFARNRADLNGGAICCSNLICSGNVNPLFFTGNSATNGGAICCISDLNTS
EKGSLSLACNQETLFASNSAKEKGGAIYAKHMVLRYNGPVSFINNSAKIGGAIAIQSGGS
LSILAGEGSVLFQNNSQRTSDQGLVRNAIYLEKDAILSSLEARNGDILFFDPIVQESSSKES
PLPSSLQASVTSPTPATASPLVIQTSANRSVIFSSERLSEEEKTPDNLTSQLQQPIELKSGRL
VLKDRAVLSAPSLSQDPQALLIMEAGTSLKTSSDLKLATLSIPLHSLDTEKSVTIHAPNLSI
QKIFLSNSGDENFYENVELLSKEQNNIPLLTLSKEQSHLHLPDGNLSSHFGYQGDWTFSW
KDSDEGHSLIANWTPKNYVPHPERQSTLVANTLWNTYSDMQAVQSMINTIAHGGAYLF
GTWGSAVSNLFYAHDSSGKPIDNWHHRSLGYLFGISTHSLDDHSFCLAAGQLLGKSSDSF
ITSTETTSYIATVQAQLATPLMKISAQACYNESIHELKTKYRSFSKEGFGSWHSVAVSGEV
CASIPIVSNGSGLFSSFSIFSKLQGFSGTQDGFEESSGEIRSFSASSFRNISLPMGITFEKKSQ
KTRNYYYFLGAYIQDLKRDVESGPVVLLKNAVSWDAPMANLDSRAYMFRLTNQRALH
RLQTLLNVSYVLRGQSHSYSLDLGTTYRF

SEQ ID NO: 24 (MOMP)(CT681)
MKKLLKSVLVFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPCDPCATWCDAIS
MRVGYYGDFVFDRVLKTDVNKEFQMGAKPTTDTGNSAAPSTLTARENPAYGRHMQDA
EMFTNAACMALNIWDRFDVFCTLGATSGYLKGNSASFNLVGLFGDNENQKTVKAESVP
NMSFDQSVVELYTDTTFAWSVGARAALWECGCATLGASFQYAQSKPKVEELNVLCNA
AEFTINKPKGYVGKEFPLDLTAGTDAATGTKDASIDYHEWQASLALSYRLNMFTPYIGV
KWSRASFDADTIRIAQPKSATAIFDTTTLNPTIAGAGDVKTGAEGQLGDTMQIVSLQLNK
MKSRKSCGIAVGTTIVDADKYAVTVETRLIDERAAHVNAQFRF

SEQ ID NO: 25 CSFIGGITYL

SEQ ID NO: 26 SFIGGITYL

SEQ ID NO: 27 SIIGGITYL

SEQ ID NO: 28 (Cap1)(CT529)
MASICGRLGSGTGNALKAFFTQPNNKMARVVNKTKGMDKTIKVAKSAAELTANILEQA
GGAGSSAHITASQVSKGLGDARTVVALGNAFNGALPGTVQSAQSFFSHMKAASQKTQE
GDEGLTADLCVSHKRRAAAAVCSIIGGITYLATFGAIRPILFVNKMLAKPFLSSQTKANM
GSSVSYIMAANHAASVVGAGLAISAERADCEARCARIAREESLLEVPGEENACEKKVAG
EKAKTFTRIKYALLTMLEKFLECVADVFKLVPLPITMGIRAIVAAGCTFTSAIIGLCTFCAR
A

SEQ ID NO: 29 (groEL-like hsp60 protein)
MVAKNIKYNEEARKKIQKGVKTLAEAVKVTLGPKGRHVVIDKSFGSPQVTKDGVTVAK
EVELADKHENMGAQMVKEVASKTADKAGDGTTTATVLAEAIYTEGLRNVTAGANPMD
LKRGIDKAVKVVVDQIRKISKPVQHHKEIAQVATISANNDAEIGNLIAEAMEKVGKNGSI
TVEEAKGFETVLDIVEGMNFNRGYLSSYFATNPETQECVLEDALVLIYDKKISGIKDFLPV
LQQVAESGRPLLIIAEDIEGEALATLVVNRIRGGFRVCAVKAPGFGDRRKAMLEDIAILTG
GQLISEELGMKLENANLAMLGKAKKVIVSKEDTTIVEGMGEKEALEARCESIKKQIEDSS
SDYDKEKLQERLAKLSGGVAVIRVGAATEIEMKEKKDRVDDAQHATIAAVEEGILPGGG
TALIRCIPTLEAFLPMLTNEDEQIGARIVLKALSAPLKQIAANAGKEGAIIFQQVMSRSANE
GYDALRDAYTDMLEAGILDPAKVTRSALESAASVAGLLLTTEALIAEIPEEKPAAAPAMP
GAGMDY

SEQ ID NO: 30 (omp2/omcB)
MRIGDPMNKLIRRAVTIFAVTSVASLFASGVLETSMAESLSTNVISLADTKAKDNTSHKS
KKARKNHSKETPVDRKEVAPVHESKATGPKQDSCFGRMYTVKVNDDRNVEITQAVPEY

ATVGSPYPIEITATGKRDCVDVIITQQLPCEAEFVRSDPATTPTADGKLVWKIDRLGQGEK
SKITVWVKPLKEGCCFTAATVCACPEIRSVTKCGQPAICVKQEGPENACLRCPVVYKINI
VNQGTATARNVVVENPVPDGYAHSSGQRVLTFTLGDMQPGEHRTITVEFCPLKRGRAT
NIATVSYCGGHKNTASVTTVINEPCVQVSIAGADWSYVCKPVEYVISVSNPGDLVLRDV
VVEDTLSPGVTVLEAAGAQISCNKVVWTVKELNPGESLQYKVLVRAQTPGQFTNNVVV
KSCSDCGTCTSCAEATTYWKGVAATHMCVVDTCDPCVGENTVYRICVTNRGSAEDTN
VSLMLKFSKELQPVSFSGPTKGTITGNTVVFDSLPRLGSKETVEFSVTLKAVSAGDARGE
AILSSDTLTVPVSDTENTHIY

SEQ ID NO: 31
MFRYTLSRSLFFILALFFCSACDSRSMITHGLSGRDANEIVVLLVSKGVAAQKVPQAASST
GGSGEQLWDISVPAAQITEALAILNQAGLPRMKGTSLLDLFAKQGLVPSEMQEKIRYQEG
LSEQMATTIRKMDGIVDASVQISFSPEEEDQRPLTASVYIKHRGVLDNPNSIMVSKIKRLV
ASAVPGLCPENVSVVSDRASYSDITINGPWGLSDEMNYVSVWGIILAKHSLTKFRLVFYF
LILLLFILSCGLLWVIWKTHTLISALGGTKGFFDPAPYSQLSFTQNKPAPKETPGAAEGAE
AQTASEQPSKENAEKQEENNEDA

SEQ ID NO 32 (CT600)
MRKTIFKAFNLLFSLLFLSSCSYPCRDWECHGCDSARPRKSSFGFVPFYSDEEIQQAFVED
FDSKEEQLYKTSAQSTSFRNITFATDSYSIKGEDNLTILASLVRHLHKSPKATLYIEGHTDE
RGAAAYNLALGARRANAVKQYLIKQGIAADRLFTISYGKEHPVHPGHNELAWQQNRRT
EFKIHAR

SEQ ID NO 33 (CT541)
MKNILSWMLMFAVALPIVGCDNGGGSQTSATEKSMVEDSALTDNQKLSRTFGHLLSRQ
LSRTEDFSLDLVEVIKGMQSEIDGQSAPLTDTEYEKQMAEVQKASFEAKCSENLASAEKF
LKENKEKAGVIELEPNKLQYRVVKEGTGRVLSGKPTALLHYTGSFIDGKVFDSSEKNKEP
ILLPLTKVIPGFSQGMQGMKEGEVRVLYIHPDLAYGTAGQLPPNSLLIFEVKLIEANDDNV
SVTE"

SEQ ID NO 34 (CT623)
MKKYFYKGFVGALLLACGSTNLAFAQASSMDSQLWSVEDLDSYLSSKGFVETRKRDGV
LRLAGDVRARWIYAKEDLETTQTPAKPMLPTNRYRSEFNLYVDYTAANSWMTSKMNW
VTIAGGESSAAGLDINRAFLGYRFYKNPETQAEVFAEIGRSGLGDIFDSDVQFNSNFDGIH
LYAARRISEKLPFTMIVHGGPFVVNMAEKEYAWVVEAILNKLPGNFVVKTSVVDWNTL
TAKTNDPADASAAQPAKPNTKYDYLVWQWLVGKSTAMPWFNGQTKNLYTYGAYLFN
PLAEIPENWKQSTTPTTKITNGKENHAWFIGCSLGGVRRAGDWSATVRYEYVEALAIPEI
DVAGIGRGNQMKYWFAQAIKQGLDPKESNGFTNYKGVSYQFVMGLTDSVSFRAYAAY
SKPANDNLGSDFTYRKYDLGLISSF

SEQ ID NO 35 (CT700)
MWLIVASTLLACLAMALVFKAYRHVISFRSYVNQVIRDVRLSVDLKEWAVAEMRLAPIL
KKRQYRRKYLFEYIRILRELERFEEAEKLLGEAKKLKLAGAHFFLEVAHKAFRHGAYKE
AAHAFSLLSAELMGEREVARYTISLVYLGEVDAACRIIEPWIGPLAHQEVFISVGHIYFAT
KRYADAIDFYRRARSLGSCPIDVLYNLAHSLRICGQYVDAGMLFRELLGDPVYKDEAMF
NIGLCEQKLGNSKKALLIYQNSELWVRGDALMMRYAALAAADQQDYQLAEHCWTLAF
RCQSYADDWNCCVHYGLALCHLKKYAEAEKVYLRVIQKTPDCLVACKALAWLAGVG
HATMISAREGIAYAKRALQIKRSPEVLELLSACEAREGNFDVAYDIQAILAERDTTAKER
ERRSQILKNLRQKLPIDQQHIVEVSLLLAA

SEQ ID NO 36 (CT266)

MLVESQLGLEDVLEAFSERNFDIQSKSFIESFQDKKLRRTVIQRFLHHPLLHIHDIARAAYL
LAALEEGVDLGYQFLCMHQTQSGAALLFRRAGFLWGGLPYPGEHAEMAMLLSRIAEFY
DTSYEQVQKMIAFQHALFSHERNIFPALWSQEGSRSNQEKTAVSKLLFCQKEARIEDQFT
LTDMSLGFWMRRTPSFSAYVSGSGCKSGVGAFLIGDVGVLNYGPCVGDPGECLGFGLC
GQVKEFSCQEKDEEVSISFAGALSQPSSRRTGFSYLQDALFSTNSCYCIDITEQKCHVASS
LDRENQDAFFAIFCKGSQCQVCNGPKLRTGSPDSYKGPAYDVLIKGEKETVRILSSSPHM
EIFSLQGKDRFWGSNFLINLPYTQNSINILFEKA

SEQ ID NO 37 (CT077)
MGKFFASYLLILAPFFLQSCSAPSRTTLEGVRMTIPYRIVFGEALSPDAFQQAQKEIDRVF
DHIDQTFNNWNPLSEISRINRTTKQTPIPLSPALFAFLCEIDHFHAFSDGRFDPTLGALKSL
WLLHLKSHTIPSQELQHLYKHSSGWHLISLDKTQQTLRKLSPLVQLDLCGTVKGFAVDL
LGTACAQFCQNYYVEWGGEIKTKGKHPSGRSWAVASSATPEILHLHDHAIATSGSQYQR
WHVDNKTYTHILDPLTGTPLEDSSHPILAVSVINESCAFADAMATALTTFSSKQEALDWA
NKKHLCAYITDKNVS

SEQ ID NO 38 (CT456)
MTNSISGYQPTVTTSTSSTTSASGASGSLGASSVSTTANATVTQTANATNSAATSSIQTTG
ETVVNYTNSASAPNVTVSTSSSSTQATATSNKTSQAVAGKITSPDTSESSETSSTSSSDHIP
SDYDDVGSNSGDISNNYDDVGSNNGDISSNYDDAAADYEPIRTTENIYESIGGSRTSGPEN
TSGGAAAALNSLRGSSYSNYDDAAADYEPIRTTENIYESIGGSRTSGPENTSGGAAAALN
SLRGSSYSNYDDAAADYEPIRTTENIYESIGGSRTSGPENTSDGAAAAALNSLRGSSYTTG
PRNEGVFGPGPEGLPDMSLPSYDPTNKTSLLTFLSNPHVKSKMLENSGHFVFIDTDRSSFI
LVPNGNWDQVCSIKVQNGKTKEDLDIKDLENMCAKFCTGFSKFSGDWDSLVEPMVSAK
AGVASGGNLPNTVIINNKFKTCVAYGPWNSQEASSGYTPSAWRRGHRVDFGGIFEKAND
FNKINWGTQAGPSSEDDGISFSNETPGAGPAAAPSPTPSSIPIINVNVNVGGTNVNIGDTNV
NTTNTTPTTQSTDASTDTSDIDDINTNNQTDDINTTDKDSDGAGGVNGDISETESSSGDDS
GSVSSSESDKNASVGNDGPAMKDILSAVRKHLDVVYPGENGGSTEGPLPANQTLGDVIS
DVENKGSAQDTKLSGNTGAGDDDPTTTAAVGNGAEEITLSDTDSGIGDDVSDTASSSGD
ESGGVSSPSSESNKNTAVGNDGPSGLDILAAVRKHLDKVYPGDNGGSTEGPLQANQTLG
DIVQDMETTGTSQETVVSPWKGSTSSTESAGGSGSVQTLLPSPPPTPSTTTLRTGTGATTT
SLMMGGPIKADIITTGGGGRIPGGGTLEKLLPRIRAHLDISFDAQGDLVSTEEPQLGSIVNK
FRQETGSRGILAFVESAPGKPGSAQVLTGTGGDKGNLFQAAAAVTQALGNVAGKVNLAI
QGQKLSSLVNDDGKGSVGRDLFQAAAQTTQVLSALIDTVG

SEQ ID NO 39 (CT165)
MFQPETVPSNRSTETTPQNIEVYNDRNFTNHTTEDVIRIGERLQRQFYNMTEESRVPFTTS
PSHHTGNWKTAFLYNLSQVVAHIFPSTVQPIRVKPTRIPPSPTPPPEGTTTAETSTSENKVT
TISKEQEVTTKPLLVRERRSLLHSQ

SEQ ID NO 40 (CT713)
MSSKLVNYLRLTFLSFLGIASTSLDAMPAGNPAFPVIPGINIEQKNACSFDLCNSYDVLSA
LSGNLKLCFCGDYIFSEEAQVKDVPVVTSVTTAGVGPSPDITSTTKTRNFDLVNCNLNTN
CVAVAFSLPDRSLSAIPLFDVSFEVKVGGLKQYYRLPMNAYRDFTSEPLNSESEVTDGMI
EVQSNYGFVWDVSLKKVIWKDGVSFVGVGADYRHASCPIDYIIANSQANPEVFIADSDG
KLNFKEWSVCVGLTTYVNDYVLPYLAFSIGVSRQAPDDSFKKLEDRFTNLKFKVRKITS
SHRGNICIGATNYVADNFFYNVEGRWGSQRAVNVSGGFQF

SEQ ID NO 41 (CT082)
MSISGSGNVSPATPDFDPSILMGRQAASAHAAKEASGASKATETSAAEQQALISSGTELD
YVTDLQQSEGKYKKTLDKTSKSPKTKLKGNFSKVRAGTKGFLTGFGTRASRISARKAEN

NGEGMSMIPSQMEYVKKKGNRVSPEMQNFYLGASGLWSPTSDVSSITENCLGATALSTT
PLLTTMQDPVSIEHLSSGEITALASFNPNVRTASLNEQTINAWTEARLGGEMVSTLLDPNI
ETSSLLRRAPTVSNEGMVDVSDMGNQTTSLSMEGLVNTVVDDPASAEEEKKTGELSLEE
MAAMAKMMAALLSSGQGMAVFIASSTPSSGLTQFPEPKFSGTIPHHFSKKEDNETIWGL
DSQIGSIAFDTRRENNASPLPTTSLHEEASYRFPVGEAPLDVNEIPFAVQHSTVFSKETANT
EQALIQNESLGEIPVSAEVVGQDTVSSAYQFPSHLGMAVLASVPLSTEDYKTAVEHRKGP
GGPPDPLIYQYRNVAVDPAIIFQSPSPFSVSSRFSVQGKPEAVAVYNDDQEEAAGGNRDS
DEGKDQEQDKTRETEDAGGDS

SEQ ID NO 42 (CT181)
MLSKFCKLSLSAILLINTLAPSETFSEEGTSGFLGRMKSWILKDKTILSTTEESQTSAIEKVS
DLLSWKRYDYTQESGFAIQFPESPEHSEQVIEVPQSDLAIRYDTYVAETPSDSTVYVVSIW
EYPEKIDISRPELNLQEGFAGMLYALPESQVLYLKATALQGHKALEFWIACDDVYFRGM
LVSVNHTLYQVFMVYKGRSPEILDKEYSTFIQSFKVTKVRNSKKMDIRKRVSL

SEQ ID NO 43 (CT050)
MNDTKNNISSSFWNPNKVVTKVLLKVSETGIESTPGIVKHNQLITQSENPTDPTDAVTFK
YLKENYTKENDPNPGFLPTTGGTMTGDIDMQGNNVTDIVMYTNGQQNPTDDSAVTIGY
LNEKADEIKSNDQITTAVAGLSNINSQISTLHQLLGIAEDPDTVTNPDLLKTSGGTVYEDI
DMSSNTVSDLGTPTNKDTKSAINVEFVQAKITSPQMAFLKNNDTNLSNITVSEYFNWLQ
DPTQAPTPEPDPDPEPAPEPEPDTSDSSGSGSENPADPAPTNPSDSNAQNNPTPSSNGATAS
IRKLAATTTTVPTDTEIAPAAEDPNLPNTTFSEKSPLWEEFFSFSDSSRSEMVIQKTGILTFS
MQGTWENPSSSQTPSTDPISLELTVTPPTTDTPPESPPSPPEAPAPEATPSPTNNNLTASITK
TFSRKYNLSATPSPTPTTPTEPTTITKTLSLSSGQSCTLQIPVQATRSVLKLKYVNPNNNSS
GGSSGSGGSSQPETTPTGITLQSFSWSLVLTPGEITKATSTPSTPSQP

SEQ ID NO 44 (CT157)
MSVQGSSSLKYSDLFKPPEPTSSTDSSKEPPKESAWKVVSHSRGRRRARSNPSPHTSQNTP
SPKDSSLVARTDKAATDIFNSAKHKAIETTKRSDQQSRSLHILHLLAENPEPIVFHSAHQT
NHNDPQRMLCDAILQANRIITMRIFNIGSPEIIRALIRAVRRNIPVVVSAWNFPNLSNWDR
ESELCVELRGNPQICLHKKTTLIDNQLTIIGTANYTKSSFFKDINLTALIQNPALYSLILSDT
RGSVSIGSQTISYYPLPFPQSNTKILPIIQEIQKAQRTIKIAMNIFSHTEIFLALEQARLRGVTI
TIVINKKESAHTLDILHRISALLLLKSVTTVDSLHAKICLIDNQTLIFGSPNWTYHGMHKN
LEDLLIVTPLTPKQIHSIQEIWAFLLKNSSPV

SEQ ID NO 45 (CT128)
MDRSPLFLIIMGAPGSGKGTQSKLLASQLSLLHISSGDLLRDAVSKDTPLSQEIKSYLDQG
KLLPDTLVWKLVHEKLDEFQQDTLLRRLSFLSRSENSAILDGFPRTVTQAKLLHEFLSSYF
PNYKVILLDISDEEVLNRLTSRYICPACQGIYNEQQGFSSCPKCSVELIRRSDDTLEVILDRI
QTYKQETQPVLDYYTEKQKLITIDANAPTQQVFQSILDSLSASLVYQERDCCNCDCDDED

SEQ ID NO 46 (CT153)
MTKPSFLYVIQPFSVFNPRLGRFSTDSDTYIEEENRLASFIESLPLEIFDIPSFMETAISNSPYI
LSWETTKDGALFTILEPKLSACAATCLVAPSIQMKSDAELLEEIKQALLRSSHDGVKYRIT
RESFSPEKKTPKVALVDDDIELIRNVDFLGRAVDIVKLDPINILNTVSEENILDYSFTRETA
QLSADGRFGIPPGTKLFPKPSFDVEISTSIFEETTSFTRSFSASVTFSVPDLAATMPLQSPPM
VENGQKEICVIQKHLFPSYSPKLVDIVKRYKREAKILINKLAFGMLWRHRAKSQILTEGS
VRLDLQGFTESKYNYQIQVGSHTIAAVLIDMDISKIQSKSEQAYAIRKIKSGFQRSLDDYH
IYQIERKQTFSFSPKHRSLSSTSHSEDSDLDLSEAAAFSGSLTCEFVKKSTQHAKNTVTCST
AAHSLYTLKEDDSSNPSEKRLDSCFRNWIENKLSANSPDSWSAFIQKFGTHYIASATFGGI
GFQVLKLSFEQVEDLHSKKISLETAAANSLLKGSVSSSTESGYSSYSSTSSSHTVFLGGTV

LPSVHDERLDFKDWSESVHLEPVPIQVSLQPITNLLVPLHFPNIGAAELSNKRESLQQAIR
VYLKEHKVDEQGERTTFTSGIDNPSSWFTLEAAHSPLIVSTPYIASWSTLPYLFPTLRERSS
ATPIVFYFCVDNNEHASQKILNQSYCFLGSLPIRQKIFGSEFASFPYLSFYGNAKEAYFDNT
YYPTRCGWIVEKLNTTQDQFLRDGDEVRLKHVSSGKYLATTPLKDTHGTLTRTTNCEDA
IFIIKKSSGY

SEQ ID NO 47 (CT262)
MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEFEKMKNQFSNSMG
KMEEELSSIYSKLQDDDYMEGLSETAAAELRKKFEDLSAEYNTAQGQYYQILNQSNLKR
MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTDAVIKVLDDSFQNN

SEQ ID NO 48 (CT276)
MFKRPAKNFFDEVQTLYEDSGANSTSYSIYPQRTERLENHSNIFEPAKPAETRLLSQEEHS
QWTDQQEELATQESSFPEEPETTLGEGVSFKGELTFERLLRIDGTFEGILVSKGKIIVGPQG
YVKANIELEEAVIAGVVEGNITVTGRVSLQGRAMVTGDIQAGSLCVDEGVRLCGYVSIQ
GAPSNEQEEIDS

SEQ ID NO 49 (CT296)
MRAVLHLEHKRYFQNHGHILFEGLAPVSDCKQLEAELKLFLKEVAVVKDRHLQRWREN
VHRTLPEVQMIVKRVRLDHLAAELTHRSRVALVRDLWVQKQEEIFFDDCDCSVLLCLSG
EKAGWGLFFSGEYPQDVFNWGAGDTAIILRFSSAGFPN

SEQ ID NO 50 (CT372)
MQAAHHHYHRYTDKLHRQNHKKDLISPKPTEQEACNTSSLSKELIPLSEQRGLLSPICDFI
SERPCLHGVSVRNLKQALKNSAGTQIALDWSILPQWFNPRVSHAPKLSIRDFGYSAHQTV
TEATPPCWQNCFNPSAAVTIYDSSYGKGVFQISYTLVRYWRENAATAGDAMMLAGSIN
DYPSRQNIFSQFTFSQNFPNERVSLTIGQYSLYAIDGTLYNNDQQLGFISYALSQNPTATYS
SGSLGAYLQVAPTASTSLQIGFQDAYNISGSSIKWSNLTKNRYNFHGFASWAPRCCLGSG
QYSVLLYVTRQVPEQMEQTMGWSVNASQHISSKLYVFGRYSGVTGHVFPINRTYSFGM
ASANLFNRNPQDLFGIACAFNNVHLSASPNTKRKYETVIEGFATIGCGPYLSFAPDFQLYL
YPALRPNKQSARVYSVRANLAI

SEQ ID NO 51 (CT412)
MNRVIEIHAHYDQRQLSQSPNTNFLVHHPYLTLIPKFLLGALIVYAPYSFAEMELAISGHK
QGKDRDTFTMISSCPEGTNYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH
FKHININGFGAGVFSESSIEFTDLRKLVAFGSESTGGIFTAKEDISFKNNHHIAFRNNITKGN
GGVIQLQGDMKGSVSFVDQRGAIIFTNNQAVTSSSMKHSGRGGAISGDFAGSRILFLNNQ
QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF
SQNHANKKGGAIYAQYVNLEQNQDTIRFEKNTAKEGGGAITSSQCSITAHNTIIFSDNAA
GDLGGGAILLEGKKPSLTLIAHSGNIAFSGNTMLHITKKASLDRHNSILIKEAPYKIQLAA
NKNHSIHFFDPVMALSASSSPIQINAPEYETPFFSPKGMIVFSGANLLDDAREDVANRTSIF
NQPVHLYNGTLSIENGAHLIVQSFKQTGGRISLSPGSSLALYTMNSFFHGNISSKEPLEING
LSFGVDISPSNLQAEIRAGNAPLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI
SKFTTDSLVTNKQSGFQGAWHFSWQPNTINNTKQKILRASWLPTGEYVLESNRVGRAVP
NSLWSTFLLLQTASHNLGDHLCNNRSLIPTSYFGVLIGGTGAEMSTHSSEEESFISRLGAT
GTSIIRLTPSLTLSGGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL
DHNAMVRICSKKDHTYGKWDTFGMRGTLGASYTFLEYDQTMRVFSFANIEATNILQRA
FTETGYNPRSFSKTKLLNIAIPIGIGYEFCLGNSSFALLGKGSIGYSRDIKRENPSTLAHLAM
NDFAWTTNGCSVPTSAHTLANQLILRYKACSLYITAYTINREGKNLSNSLSCGGYVGF

SEQ ID NO 52 (CT480)

MIDKIIRTILVLSLFLLYWSSDLLEKDVKSIKRELKALHEDVLELVRISHQQKNWVQSTDF
SVSPEISVLKDCGDPAFPNLLCEDPYVEKVVPSLLKEGFVPKGILRTAQVGRPDNLSPFNG
FVNIVRFYELCVPNLAVEHVGKYEEFAPSLALKIEEHYVEDGSGDKEFHIYLRPNMFWEP
IDPTLFPKNITLADSFLRPHPVTAHDVKFYYDVVMNPYVAEMRAVAMRSYFEDMVSVR
VENDLKLIVRWRAHTVRNEQGEEEKKVLYSAFANTLALQPLPCFVYQHFANGEKIVPED
SDPDTYRKDSVWAQNFSSHWAYNYIVSCGAFRFAGMDDEKITLVRNPNYHNPFAALVE
KRYIYMKDSTDSLFQDFKAGKVDIAYFPPNHVDNLASFMQTSAYKEQAARGEAILEKNS
SDRSYSYIGWNCLSLFFNNRSVRQAMNMLIDRDRIIEQCLDGRGVSVSGPFSLCSPSYNR
DVEGWQYSPEEAARKLEEEGWIDADGDGIREKVIDGVVVPFRFRLCYYVKSVTARTIAE
YVATVCKEVGIECCLLGLDMADYSQALEEKNFDAILSGWCLGTPPEDPRALWHSEGALE
KGSANAVGFCNEEADRIIEQLSYEYDSNKRQALYHRFHEVIHEESPYAFLYSRQYSLVYK
EFVKNIFVPTEHQDLIPGAQDETVNLSMLWVDKEEGRCSAIS

SEQ ID NO 53 (CT548)
MLKMFWLNSLVFFSLLLSACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGDLVSSLSYEL
EKRGLHTRSQGTSSGYVLKVSLFNETDENIGFAYTPQKPDEKPVKHFIVSNEGRLALSAK
VQLIKNRTQEILVEKCLRKSVTFDFQPDLGTANAHQLALGQFEMHNEAIKSASRILYSQL
AETIVQQVYYDLF

SEQ ID NO 54 (CT043)
MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLTYEEHSDRLYVYAPLLD
GLPDNPQRRLALYEKLLEGSMLGGQMAGGGVGVATKEQLILMHCVLDMKYAETNLLK
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPPAGIRA

SEQ ID NO 55 (CT635)
MKNNSAQKIIDSIKQILSIYKIDFEPSFGATLTDDNDLDYQMLIEKTQEKIQELDKRSQEIL
QQTGMTREQMEVFANNPDNFSPEEWRALENIRSSCNEYKKETEELIKEVTNDIGHSSHKS
PTPKKTKSSSQKKSKKKNWIPL

SEQ ID NO 56 (CT859)
MRKIILCSPRGFCAGVIRAIQTVEVALEKWGRPIYVKHEIVHNRHVVDKLREKGAIFIEDL
QEVPRNSRVIFSAHGVPPSVREEAEERGLIAIDATCGLVTKVHSAVKMYAKKGYHIILIGK
RKHVEIIGIRGEAPDQITVVENIAEVEALPFSAQDPLFYVTQTTLSMDDAADIVAALKARY
PRIFTLPSSSICYATQNRQGALRNILPQVDFVYVIGDTQSSNSNRLREVAERRGVTARLVN
HPDEVTEEILQYSGNIGITAGASTPEDVVQACLMKLQELIPDLSIEMDLFVEEDTVFQLPK
EL

SEQ ID NO 57 (CT671)
MELNKTSESLFSAKIDHNHPRTEAHEPRDQREVRVFSLEGRSSTRQEKADRMPGRTSSRQ
ESSKGSEEGAVHESTAGVSSKEEEESKGDGFFTGGNPTSGMALVETPMAVVSEAMVETS
TMTVSQVDLQWVEQLVTSTVESLLVADIDGKQLVEIVLDNSNTVPAAFCGANLTLVQTG
EEISVSFSNFVDQAQLTEATQLVQQNPKQLVSLVESLKARQLNLTELVVGNVAVSLPTIE
KIETPLHMIAATIRHHDQEGDQEGEGRQDQHQGQHQEKKVEEAHI

SEQ ID NO 58 (CT016)
MKVKINDQFICISPYISARWNQIAFIESCDGGTEGGITLKLHLIDGETVSIPNLGQAIVDEVF
QEHLLYLESTAPQKNKEEEKISSLLGAVQQMAKGCEVQVFSQKGLVSMLLGGAGSINVL
LQHSPEHKDHPDLPTDLLERIAQMMRSLSIGPTSILAKPEPHCNCLHCQIGRATVEEEDAG
VSDEDLTFRSWDISQSGEKMYTVTDPLNPEEQFNVYLGTPIGCTCGQPYCEHVKAVLYT

SEQ ID NO 59 (CT017)

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MLIFALSFGADACLCAADLSKAKVEASVGDRAAFSPFTGEIKGNRVRLRLAPHTDSFIIKE
LSKGDCLAVLGESKDYYVVAAPEGVRGYVFRTFVLDNVIEGEKVNVRLEPSTSAPILARL
SKGTVVKTLGAAQGKWIEIALPKQCVFYVAKNFVKNVGALDLYNQKEGQKKLALDLLS
SAMDFADAELQKKIEDIDLDAIYKKMNLAQSEEFKDVPGLQSLVQKALERVQEAFLAKS
LEKSSVKVPEIRHKVLEEIAVVSPAVEETPVVTKTEEQKVTTVPVPAPAVVTEPAQDLSSV
KGSLLSHYIRKKGFVKASPVIEGRESFERSLFAVWLSLQPEEIRHQLTMESFYRDEQKKKR
VLTGELEVYPHIVKNNPGDYLLKNGEDVVAFVYATSIDLSKWLGKSVVLECVSRPNNHF
AFPAYIVLSVKEGA

SEQ ID NO 60 (CT043)
MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLTYEEHSDRLYVYAPLLD
GLPDNPQRRLALYEKLLEGSMLGGQMAGGGVGVATKEQLILMHCVLDMKYAETNLLK
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPPAGIRA

SEQ ID NO 61 (CT548)
MLKMFWLNSLVFFSLLLSACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGDLVSSLSYEL
EKRGLHTRSQGTSSGYVLKVSLFNETDENIGFAYTPQKPDEKPVKHFIVSNEGRLALSAK
VQLIKNRTQEILVEKCLRKSVTFDFQPDLGTANAHQLALGQFEMHNEAIKSASRILYSQL
AETIVQQVYYDLF